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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/715,572

11/17/2003

Ann C. Irvine

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QUALCOMM INCORPORATED  
5775 MOREHOUSE DR.  
SAN DIEGO, CA 92121

EXAMINER

LAUTURE, JOSEPH J

ART UNIT

PAPER NUMBER

2819

NOTIFICATION DATE

DELIVERY MODE

06/17/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com  
kascanla@qualcomm.com  
nanm@qualcomm.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/715,572	<b>Applicant(s)</b> IRVINE ET AL.	
	<b>Examiner</b> JOSEPH LAUTURE	<b>Art Unit</b> 2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>041808</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

The allowability of claims 1-41 has been withdrawn in view of the newly discovered reference to Tong et al (US 5,982,434).

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-24 and 31-41 are rejected under 35 U.S.C 102(b) as being anticipated by Tong et al (US 5,982,434).

Regarding claim 1, Tong et al teach in figure (1) a method for generating multiple descriptions of compressed data, the method comprising: generating transform coefficients from input data using a transformer (20); quantizing the transform coefficients using a quantizer (2); generating an energy distribution of the quantized transform coefficients, i.e. grouping the transform coefficients into frequency bands (See abstract); grouping the transform coefficients into layers based on the energy distribution i.e. hierarchically grouping the transform coefficients (See abstract); and using entropy coding also known as run length coding to encode a first number of layers by means of run length coder (4) to generate a first description of compressed data.

Regarding claim 12, Tong et al teach in figure (1) an apparatus for generating multiple descriptions of compressed data, the apparatus comprising: a transformer (20) for generating transform coefficients from input data; a quantizer (2) for quantizing the

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transform coefficients; means for generating an energy distribution of the quantized transform coefficients, i.e. for grouping the transform coefficients into frequency bands (See abstract); means for grouping the transform coefficients into layers based on the energy distribution i.e. for hierarchically grouping the transform coefficients (See abstract); and run length coder (4) also known as entropy coder to encode a first number of layers to generate a first description of compressed data.

Regarding claim 12, Tong et al teach in figure (1) an apparatus for generating multiple descriptions of compressed data, the apparatus comprising: a transform module (20) for generating transform coefficients from input data; a quantization module (2) coupled to the transform module for quantizing the transform coefficients; inherent layering module for generating an energy distribution of the quantized transform coefficients, i.e. for grouping the transform coefficients into frequency bands (See abstract), the layering module being inherent since it is needed to group the coefficients based on energy distribution i.e. for hierarchically grouping the transform coefficients (See abstract; See column 5, lines 42-57 and column 6, lines 37-67); and a run length coder (4) also known as entropy coder to encode a first number of layers to generate a first description of compressed data.

Regarding claim 22, Tong et al teach in figure (1) an apparatus for generating multiple descriptions of compressed data, the apparatus comprising: a transform module (20) for generating transform coefficients from input data; a quantization module (2) coupled to the transform module for quantizing the transform coefficients; inherent layering module for generating an energy distribution of the quantized transform

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coefficients, i.e. for grouping the transform coefficients into frequency bands (See abstract), the layering module being inherent since it is needed to group the coefficients based on energy distribution i.e. for hierarchically grouping the transform coefficients (See abstract; See column 5, lines 42-57 and column 6, lines 37-67); and a run length coder (4) also known as entropy coder to encode a first number of layers to generate a first description of compressed data.

Regarding claim 31, Tong et al teach in figures (5) and (6) a computer program product comprising: a computer readable medium including: code for generating transform coefficients from input data using a transformer (20); code for quantizing the transform coefficients using a quantizer (2); code for generating an energy distribution of the quantized transform coefficients, i.e. grouping the transform coefficients into frequency bands (See abstract); code for grouping the transform coefficients into layers based on the energy distribution i.e. hierarchically grouping the transform coefficients (See abstract); and code for entropy coding also known as run length coding a first number of layers by means of run length coder (4) to generate a first description of compressed data.

Regarding claims 2-11, Tong et al teach as shown in figures in figures (1), (5), (6) and (11): a video encoding method that includes: grouping blocks of transform coefficients made of various numbers of bits including nibbles and crumbs into layers in an order of significance, i.e. according to their energy distribution (See abstract; `), wherein the quantized transform coefficients are arranged and stored in a memory (3) prior to generating the energy distribution, wherein the transform coefficients are

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generated using discrete cosine transforms (See column 1, lines 36-39) and entropy encoding various subsequent layers to generate further compressed data that is stored in an inventory, wherein the layers are sequentially extracted for compression.

Regarding claims 13-21, 23 and 24, Tong et al teach as shown in figures (1), (5), (6) and (11): a video encoding method that includes: grouping blocks of transform coefficients made of various numbers of bits including nibbles and crumbs into layers in an order of significance, i.e. according to their energy distribution (See abstract), wherein the quantized transform coefficients are arranged and stored in a memory (3) prior to generating the energy distribution, wherein the transform coefficients are generated using DCT/absolute transforms (See column 1, lines 36-39) and entropy encoding various subsequent layers to generate further compressed data that is stored in an inventory, wherein the layers are sequentially extracted for compression.

Regarding claims 32-41, Tong et al teach as shown in figures (1), (5), (6) and (11): a computer program product and method for video encoding, the computer program including codes for: grouping blocks of transform coefficients made of various numbers of bits including higher and lower nibbles and crumbs into layers in an order of significance, i.e. according to their energy distribution (See abstract), wherein the quantized transform coefficients are arranged and stored in a memory (3) prior to generating the energy distribution, wherein the transform coefficients are generated using DCT/absolute transforms (See column 1, lines 36-39) and entropy encoding various subsequent layers to generate further compressed data that is stored in an inventory, wherein the layers are sequentially extracted for compression.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25-30 are rejected under 35 U.S.C 103(a) as being unpatentable over Tong et al (US 5,982,434) in view of Itawaki et al (US 2002/0085584).

Regarding claim 25, Tong et al teach in figure (1) a method for generating compressed data based on quantized transform coefficients output from a quantizer (2), the method comprising: accessing an inventory of multiple layers of compressed data generated based on an energy distribution of the quantized transform coefficients (See abstract); and, extracting with a multiplexer (6) a selected number of layers from the inventory to generate the compressed data.

Tong et al do not specifically teach a method for generating compressed data wherein data is extracted based on a bit rate requirement. However, Itawaki et al teach in figure (4) a multiplex system for video encoding, wherein a multiplexing apparatus (6) extracts data based on a bit rate requirement (See figures (9), (10); See paragraph [0030]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Tong et al and of Itawaki et al to realize a system having improved performance and reliability because that would make it possible to transmit more programs (See paragraph [0006]).

Regarding claim 27, Tong et al teach in figure (1) an apparatus for generating compressed data based on quantized transform coefficients output from a quantizer (2), the apparatus comprising: means for accessing an inventory of multiple layers of compressed data generated based on an energy distribution of the quantized transform coefficients (See abstract); and, a multiplexer (6) for extracting a selected number of layers from the inventory to generate the compressed data.

Tong et al do not specifically teach a method for generating compressed data wherein data is extracted based on a bit rate requirement. However, Itawaki et al teach in figure (4) a multiplex system for video encoding, wherein a multiplexing apparatus (6) extracts data based on a bit rate requirement (See figures (9), (10); See paragraph [0030]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Tong et al and of Itawaki et al to realize a system having improved performance and reliability because that would make it possible to transmit more programs (See paragraph [0006]).

Regarding claim 29, Tong et al teach in figure (1) an apparatus for generating compressed data based on quantized transform coefficients output from a quantizer (2), the apparatus comprising: a storage medium (3) configured to store an inventory of multiple layers of compressed data generated based on an energy distribution of the quantized transform coefficients (See abstract; See ); and, a multiplexer (6) for extracting a selected number of layers from the inventory to generate the compressed data.



Tong et al do not specifically teach a method for generating compressed data wherein data is extracted based on a bit rate requirement. However, Itawaki et al teach in figure (4) a multiplex system for video encoding, wherein a multiplexing apparatus (6) extracts data based on a bit rate requirement (See figures (9), (10); See paragraph [0030]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Tong et al and of Itawaki et al to realize a system having improved performance and reliability because that would make it possible to transmit more programs (See paragraph [0006]).

Regarding claims 26, 28 and 30, the combination of Tong et al and of Itawaki et al teach (See figure 1 of Tong et al) a method for generating compressed data based on quantized transform coefficients (See abstract of Tong et al), the method including accessing a master inventory of multiple layers of compressed data stored in a memory (3), wherein the compressed data is generated based on energy distribution of the quantized transform coefficients (See abstract of Tong et al).

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### CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Lauture, whose telephone number is (571) 272-1805. The examiner can normally be reached Monday to Friday between 9:30 am and 6:00 PM

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rexford Barnie can be reached at (571) 272-7492. The fax number for the organization to which this application is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free). For assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joseph Lauture

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Date: 06/02/2008

/Rexford N BARNIE/

Supervisory Patent Examiner, Art Unit 2819